



Naval Research Laboratory



The Navy and Marine Corps Corporate Laboratory

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Establishment of NRL



THOMAS A. EDISON

“GOVERNMENT SHOULD MAINTAIN A GREAT RESEARCH LABORATORY TO DEVELOP GUNS, NEW EXPLOSIVES AND ALL THE TECHNIQUE OF MILITARY AND NAVAL PROGRESSION WITHOUT ANY VAST EXPENSE.”

**THOMAS A. EDISON,
THE NEW YORK TIMES MAGAZINE
SUNDAY, MAY 30, 1915**

A WORLD-CLASS LABORATORY

- Idea followed the sinking of the Lusitania in 1915
- Secretary Josephus Daniels Established Naval Consulting Board with Edison Chair, meeting October 7, 1915
- August 29, 1916 Congress appropriates funds to establish the Lab
- Delayed by WW-I, Assistant Secretary of the Navy, Theodore Roosevelt, Jr. Commissions the Lab at Bellevue site on July 2, 1923

Navy and Marine Corps Corporate Laboratory



NRL Mission

- To conduct a **broadly based multidisciplinary program of** scientific research and advanced technological development directed toward maritime applications of new and improved materials, techniques, equipment, systems and ocean, atmospheric, and space sciences and related technologies.
- Primary in-house research for the physical, engineering, space, and environmental sciences
- Broadly based applied research and advanced technology development program in **response to identified and anticipated Navy and Marine Corps needs**
- Broad multidisciplinary support to the Naval Warfare Centers
- Space & space systems technology development & support
- Designated as the **Navy's corporate laboratory** by SECNAV 1991



NRL: The DoN's Corporate Laboratory

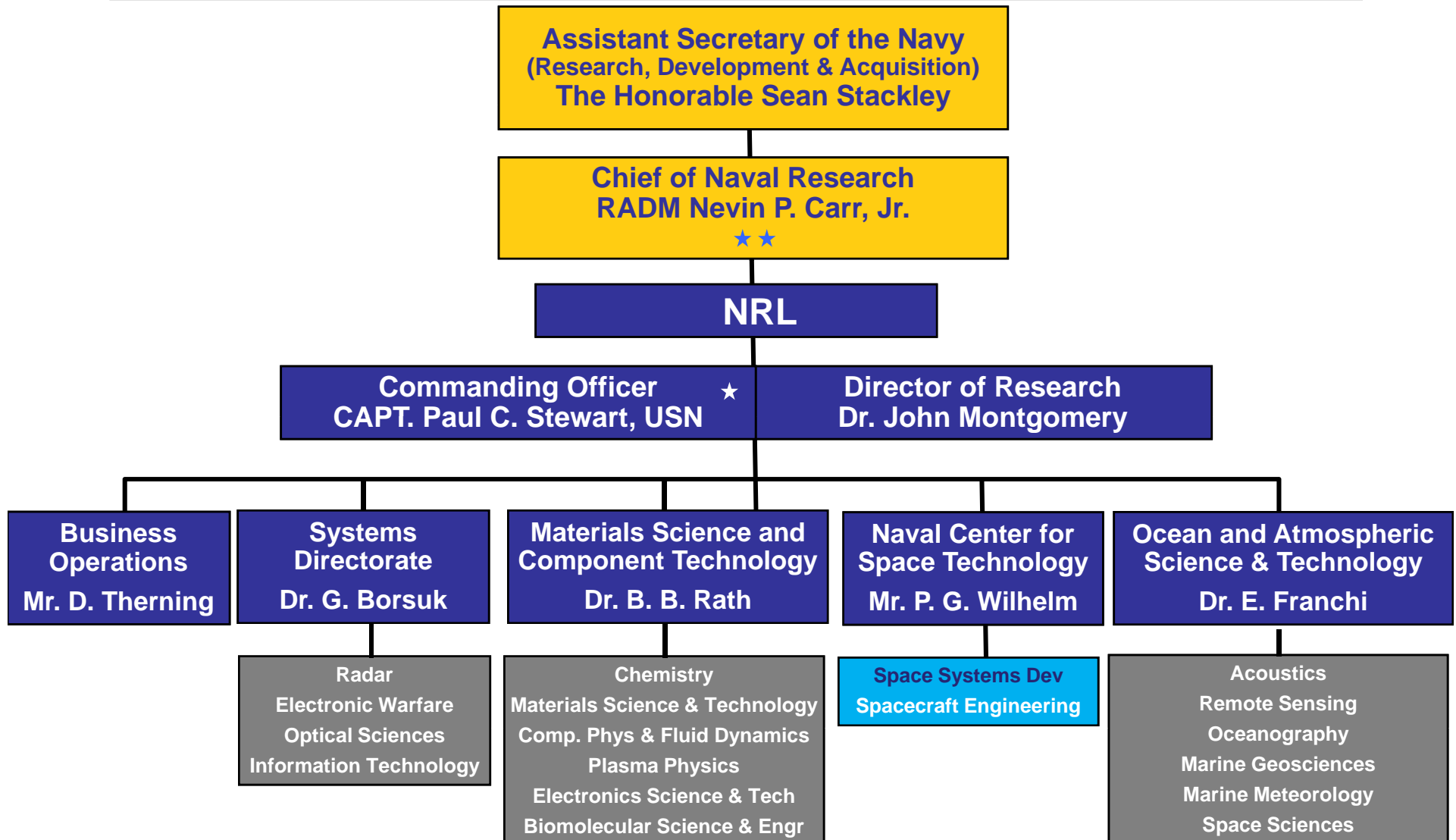
Lines of Business

- Sensors, Electronics and Electronic Warfare
 - Materials/Processes
 - Battlespace Environments
 - Undersea Warfare
 - Information Systems Technology
 - Space Platforms
-
- Technology Transfer



Naval Research Laboratory

Naval Research Laboratory's Organizational Relationships





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MONTEREY, CA



**PATUXENT RIVER
VXS-1 Squadron**

NRL D.C.



**Chesapeake Bay Div
Tilghman Is.
Midway Res Ctr
Blossom Point
Pomonkey**



**BAY ST. LOUIS, MS
John C. Stennis Space Center**



**MOBILE, AL
Ex-USS Shadwell**

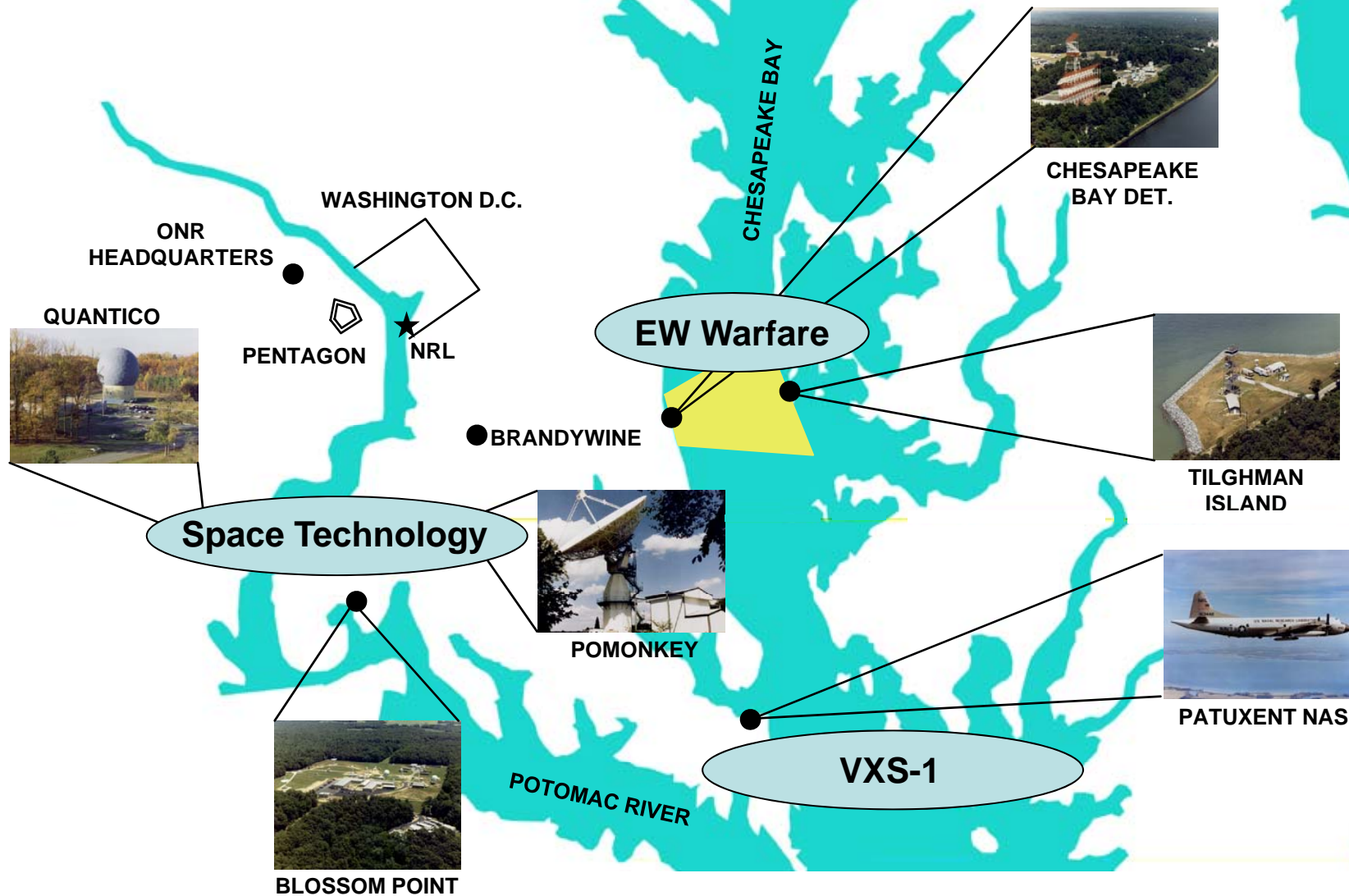


**KEY WEST
Marine Corrosion
Facility**

* Additional sites
based on sponsors



DC Area Field Sites





Key Capabilities of Remote Sites

Monterey:

- Weather model development
- Forecasting
- Co-located with Fleet Numerical

Stennis :

- Ocean modeling and prediction
- Oceanographic research
- Co-located with NAVOCEANO

Mobile Bay:

- ex-USS Shadwell
- Shipboard firefighting research

Key West:

- Marine corrosion research

Chesapeake Bay Division,

Tilghman Island:

- Electronic Warfare Development
- Microwave Ocean Environment Surrogate

MRC, Blossom Point, Pomonkey:

- Spacecraft testing
- Calibration
- Control and Operations



Scientific Development Squadron ONE (VXS-1)



- Provides airborne research capability to NRL
- Sensor and system test bed, airborne surrogate
- Worldwide deployable
- **5** Aircraft
 - **2** Research Modified NP-3D
 - **1** AEW Rotodome NP-3D
 - **2** Research Modified RC-12
- **12** Officers, **76** Enlisted, **4** Civilians

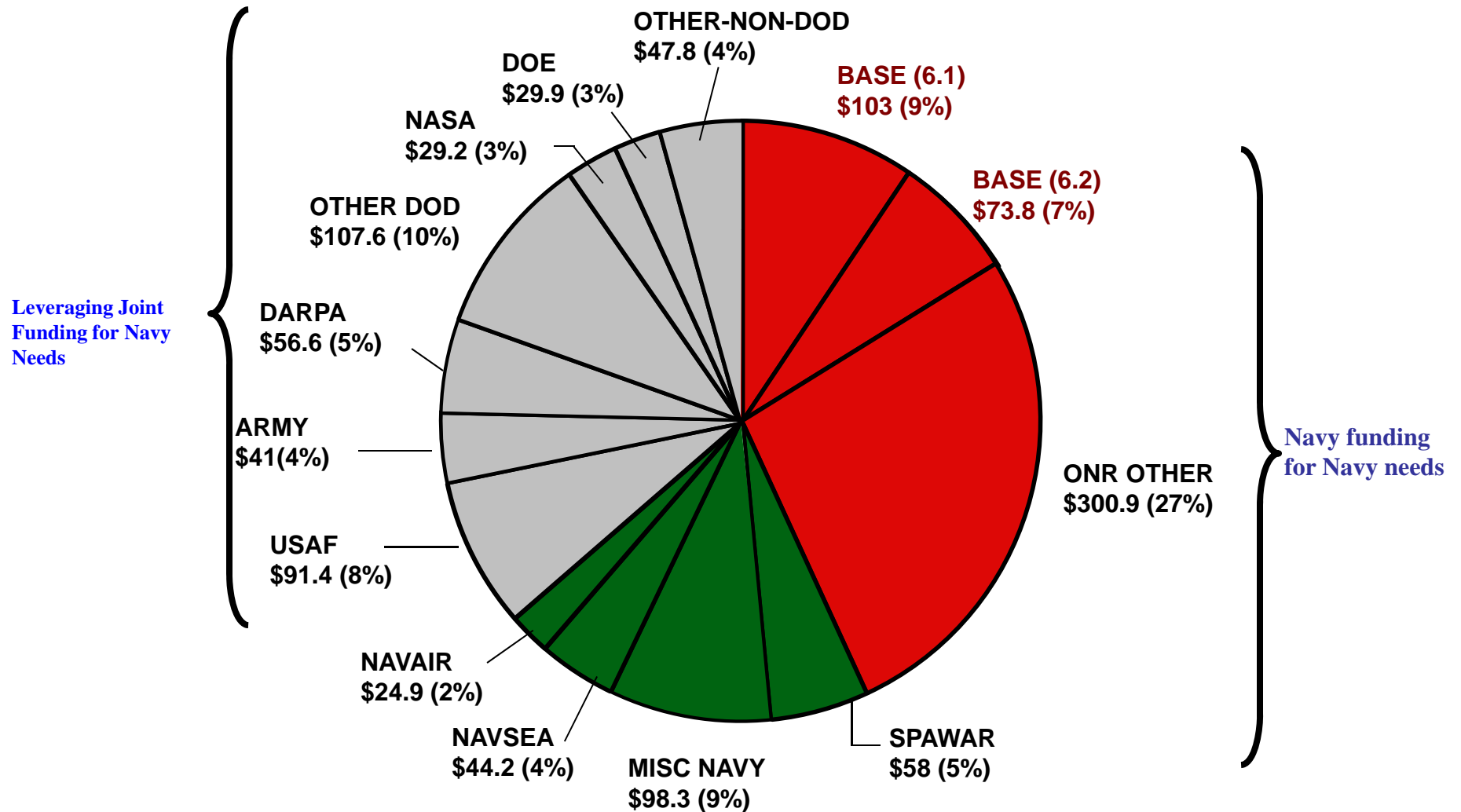




SPONSORS

FY08 COSTS

TOTAL \$1,106.6 MILLION





NRL S&T Base Program

\$105.3M 6.1, \$73.1M 6.2 in FY09

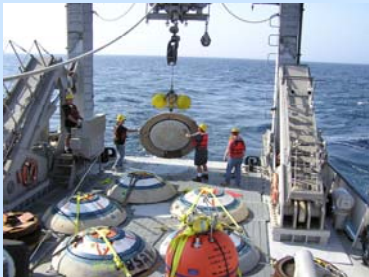
- IN-HOUSE BASIC AND APPLIED RESEARCH FOR THE PHYSICAL, ENGINEERING, SPACE, AND ENVIRONMENTAL SCIENCES
- RESULTS TO ADVANCE NAVAL SYSTEMS AND CAPABILITIES

16%

Battlespace Environments

Environmental processes and phenomena of the ocean, sediment near shore and marine atmosphere

Barney and Long Ranger ADCPs



16%

Electronics

Research leadership on new electronic and electro-optic phenomena, materials, theory and techniques for future Naval forces and avoid technological surprise.



NRL Railgun

14%

Electromagnetic Warfare

Develops technologies for total electromagnetic battlespace awareness/dominance

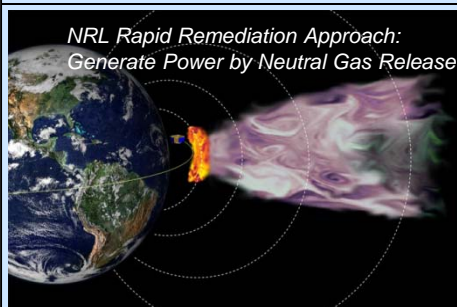


AN/ALQ-228(V)1 Communications Jamming Pod

9%

Space Res. & Space Tech

Understand the space environment and its effects on Naval systems. Conduct unique experiments in space, specific to future DON needs.

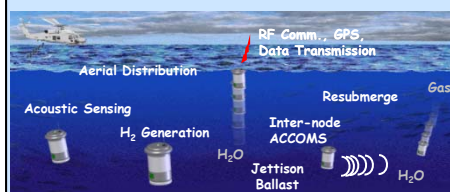


14%

Undersea Warfare

Research and advanced technologies for undersea sensors for ASW/MW

Undersea Distributed Surveillance



4%

Information Technology

Science and technology for communications, information security, decision support, and autonomous systems.

Mobile Networks



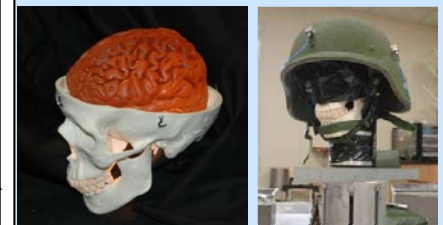
Personal Secure Phone

26%

Materials & Chemistry

Development of advanced functional and structural materials

NRL "GelMan" developed and implemented to determine internal brain dynamic responses under blast conditions





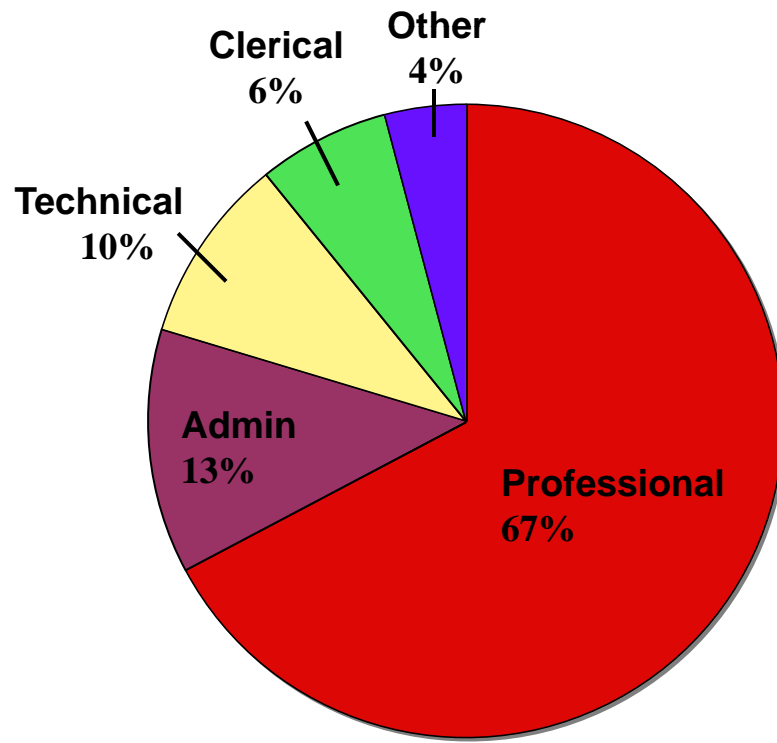
NRL PERSONNEL FY 08

(FTP Only)

TOTAL	2168 (WG INCLUDED)
BACHELOR	508
MASTER	312
DOCTORATE	732

SCIENTISTS/ENGINEERS: 1470

PHYSICISTS	365
ELECTRONICS ENGINEERS	333
*OTHER	337
CHEMISTS	88
COMPUTER SCIENTISTS	125
MECHANICAL ENGINEERS	60
ASTRONOMERS	33
AEROSPACE ENGINEERS	54
GEN PHYS SCIENTISTS	38
MATHEMATICIANS	26
METALLURGISTS	11



*(other includes: Biologists, Microbiologists, Chemical, General Materials, Electrical and Computer Engineers, Meteorologists and Oceanographers)



World Class Science

(Linkage Between U.S. Scientific Research and Patents)

Top Ten U.S. Institutions in Rank Order

Physics Papers

1. AT&T Bell Labs
2. IBM Corporation
3. Stanford University
4. Bellcore
5. **Naval Research Laboratory**
6. Lincoln Labs
7. MIT
8. Univ. of Illinois
9. UC Santa Barbara
10. Cornell University

Engineering & Tech. Papers

1. AT&T Bell Labs
2. IBM Corporation
3. Univ. of CA Berkeley
4. MIT
5. Stanford University
6. General Electric Company
7. Texas Instruments
8. **Naval Research Laboratory**
9. NC State University
10. Bellcore



High Value to DoN

In BRAC 05, of **617** DoD technical activities at **282** military installations:

- NRL was ranked **#1** for Military Value in **6** of **13** S&T technical areas and in top 10 in remaining 7. No other DoD center ranked as **#1** in more than one S&T technical area.



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NRL Accomplishments



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Questions?

The Navy and Marine Corps Corporate Laboratory